

ILLEGIB

Approved For Release 2000/08/04 : CIA-RDP78T05439A000200080065-4

Approved For Release 2000/08/04 : CIA-RDP78T05439A000200080065-4

~~TOP SECRET CHESS RUFF~~

PHOTOGRAPHIC INTERPRETATION REPORT

POSSIBLE SOLID PROPELLANT
MISSILE ENGINE MANUFACTURING PLANT
KARABASH, USSR

NPIC/R-77/62

May 1962

Declassification review by NIMA/DOD

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

~~TOP SECRET CHESS RUFF~~

TOP SECRET CHESS RUFF

NPIC/R-77/62

INTRODUCTION

25X1B

25X1B

A large industrial installation near Karabash, USSR, constructed probably 3 to 5 years ago, is being expanded. [REDACTED]

25X1B

[REDACTED] solid propellant missile engine manufacturing and testing plant when compared with like installations in the US. An extensive study does not show any apparent association of the plant with

25X9

[REDACTED] the Karabash Copper Combine. The installation, however, could have an association with missile-related industries in Zlatoust and Chelyabinsk.

25X1D

The possible solid propellant missile engine manufacturing plant, covered by TALENT photography of [REDACTED] and KEYHOLE photography

25X1D

[REDACTED] is located at 55-25N 60-12E (Figure 1). The plant is just south of Karabash, 20 nautical miles (nm) south-southeast of Kyshtym, 22 nm northeast of Zlatoust, and 45 nm northwest of Chelyabinsk. The plant, which encompasses a secured area 3 nm north-south and 1.7 nm east-west, lies in an area of heavily wooded low hills in the Central Ural Mountains in Chelyabinskaya Oblast.

The plant is secured by a fence, and an internal fence separates the Possible Manufacturing Area and Possible Missile Engine Test Area "A" from the support and housing areas (Figure 2). Other security measures and heights of structures are not determinable, due to the small scale of the photography.

25X1A

This plant, which is 3 nm south of the Karabash Copper Combine [REDACTED], is served from Kyshtym by a single-track rail line that makes connections north to Sverdlovsk and southeast to Chelyabinsk. Road connections are with Kyshtym to the north-northeast, with Chelyabinsk to the southeast, and with Miass and Zlatoust to the southwest. Air support could be provided by Chelyabinsk Airfield. Adequate power for the operations at the plant could be supplied by the Urals power grid via

TOP SECRET CHESS RUFF

TOP SECRET CHESS RUFF

NPIC/R-77/62

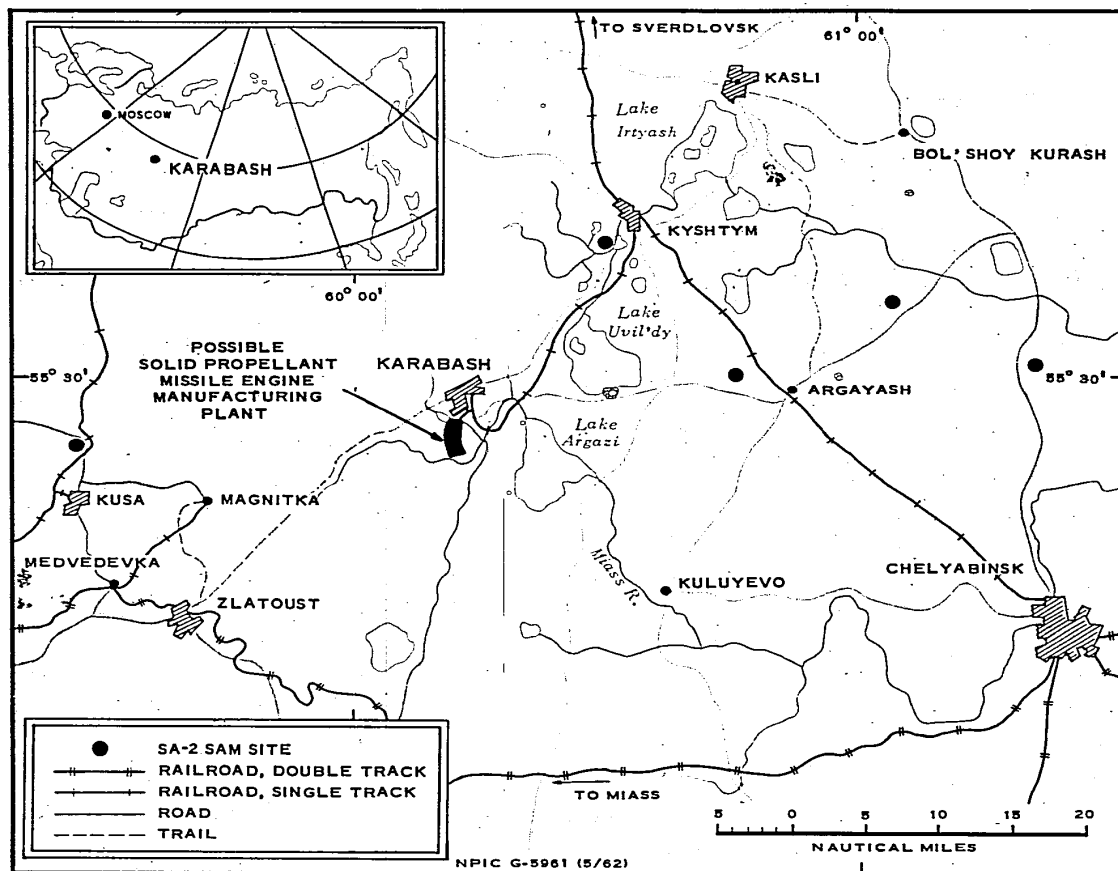


FIGURE 1. LOCATION OF THE POSSIBLE SOLID PROPELLANT MISSILE ENGINE MANUFACTURING PLANT, KARABASH, USSR.

a substation in Karabash. Water probably is supplied by pipelines from local lakes. Facilities at two locations within the installation provide housing for about 400 families and about 790 single personnel.

POSSIBLE MANUFACTURING AREA

The Possible Manufacturing Area (Figure 3) lies in the southeast portion of the installation and measures approximately 8,400 by 3,300

- 2 -

TOP SECRET CHESS RUFF

TOP SECRET CHESS RUFF

NPIC/R-77/62

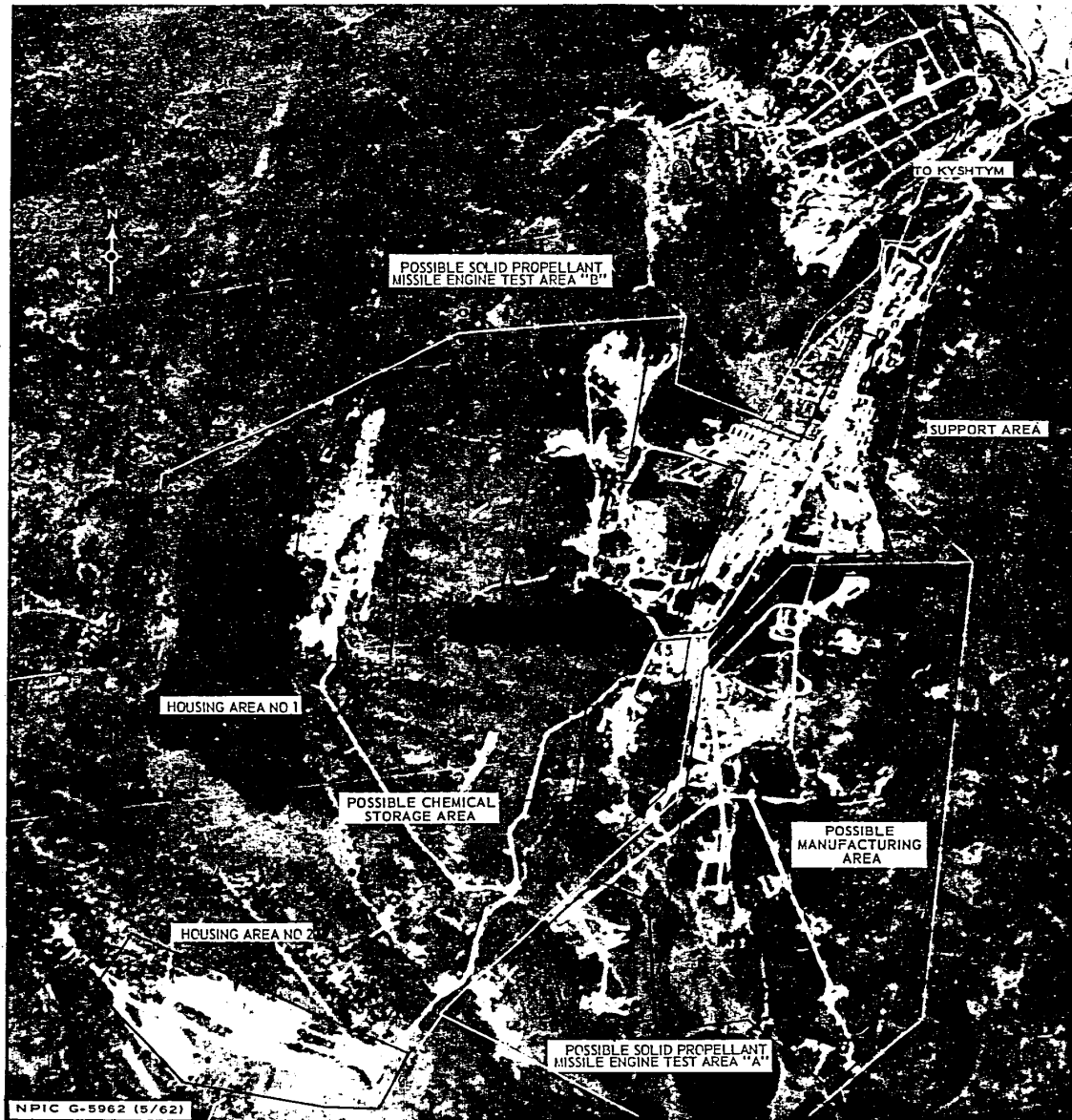


FIGURE 2. POSSIBLE SOLID PROPELLANT MISSILE ENGINE MANUFACTURING PLANT, KARABASH, USSR

TOP SECRET CHESS RUFF

TOP SECRET CHESS RUFF

NPIC/R-77/62

feet. This area is marked by its wide dispersal of facilities; wide-radius turns at all road intersections; and a security fence separating it from the support, storage, and housing areas. Water probably is supplied by pipelines from nearby lakes, and power is supplied from a substation in Karabash, probably by overhead power lines. The location of these probable power lines cannot be determined, however, because of the small scale of the photography. Heat probably is supplied by the possible heating plant for the complex (Figure 5, item 7), but pipelines are not discernible. The well-laid-out and dispersed network of all-weather roads in the Possible Manufacturing Area is significant in that all approaches to buildings and all intersections have wide-radius turns such as would be needed for special vehicles hauling trailers carrying heavy loads. There is direct road connection to Possible Missile Engine Test Area "A", which also is within the internal fence. Following is a detailed description of the facilities within the Possible Manufacturing Area (item numbers correspond to those on Figure 3).

Item 1. Possible casting and in-ground oven. This is a possible rail-mounted movable building that measures 125 by 85 feet and may be moved aside for inserting and withdrawing engines. It also is a drive-through building and is located along a loop road off the main service road. The dispersal radius to the nearest vital structure (item 2) is approximately 1,100 feet. No heating pipelines are discernible.

Item 2. Possible casting and in-ground oven. This is a possible rail-mounted movable building that measures 125 by 85 feet and may be moved aside for inserting and withdrawing engines. It also is a drive-through building and is located along a loop road off the main service road. The dispersal radius to the nearest vital structure (item 3) is approximately 900 feet.

Item 3. Possible oxidizer grinding station. This is a drive-through building that measures 270 by 70 feet and is served by a loop road off the main service road. The dispersal radius to the nearest vital structure (item 4) is approximately 800 feet.

- 4 -

TOP SECRET CHESS RUFF

25X1D

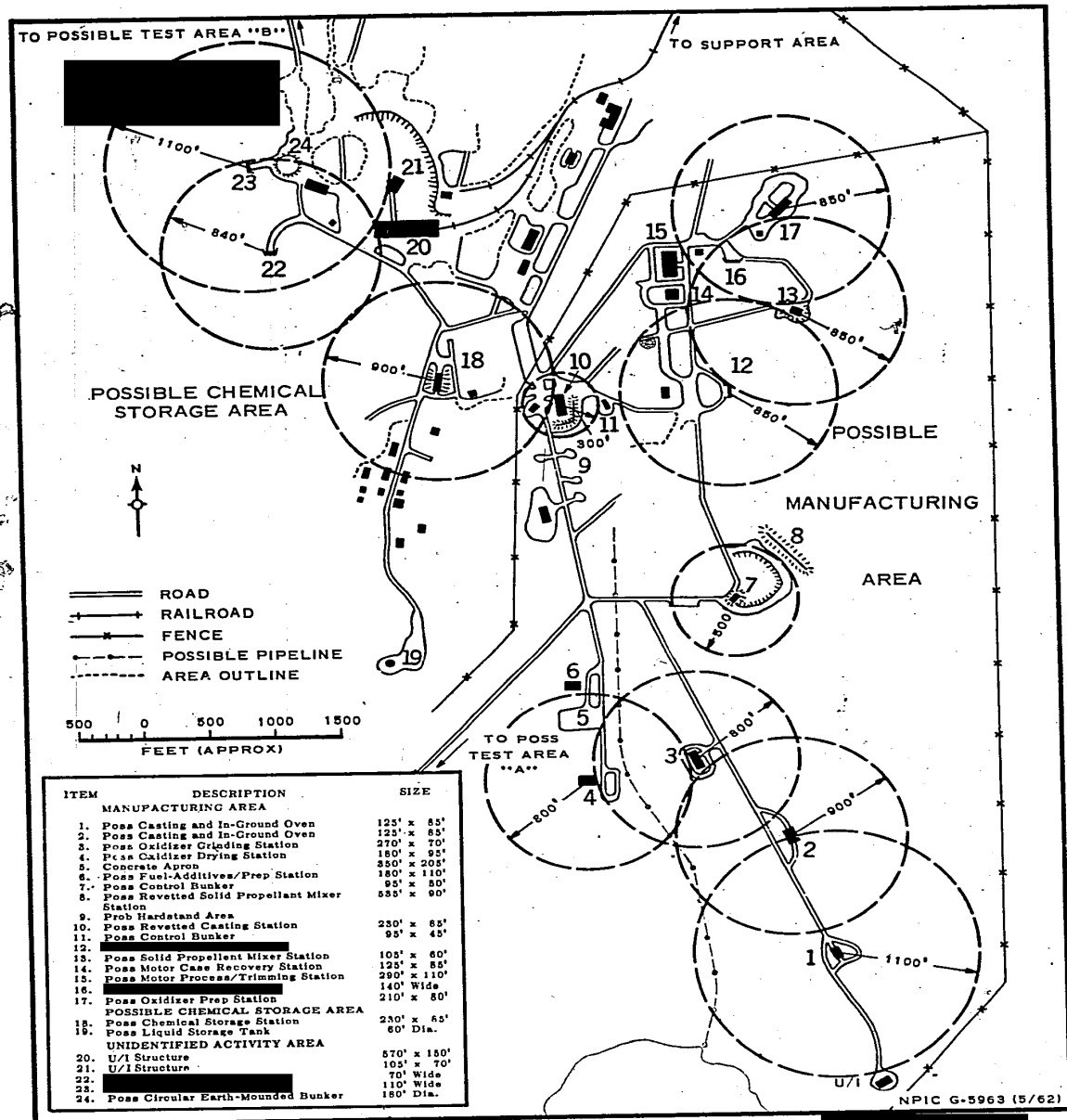


FIGURE 3. POSSIBLE MANUFACTURING, POSSIBLE CHEMICAL STORAGE, UNIDENTIFIED ACTIVITY AREA

25X1D

TOP SECRET CHESS RUFF

NPIC/R-77/62

Item 4. Possible oxidizer drying station. This building measures 180 by 95 feet and is served by a loop road off the main service road. The dispersal radius to the nearest vital structures (items 3 and 6) is approximately 800 feet.

Item 5. Concrete apron. This apron measures 350 by 205 feet and probably is used for parking associated vehicles used at items 4 and 6.

Item 6. Possible fuel and additives preparation station. This station measures 180 by 110 feet and is served by a loop road off the main service road. The dispersal radius to the nearest vital structure (item 4) is approximately 800 feet.

Item 7. Possible control bunker. This possible control bunker measures 95 by 50 feet and probably is for remote control of the possible solid propellant mixer station (item 8). An associated parking apron is adjacent to the bunker off the service road. The dispersal radius to the nearest vital structure (item 8) is approximately 500 feet.

Item 8. Possible revetted solid propellant mixer station. This station is located on the side of a hill cut. No structure is visible, but it could be obscured by earth mounding. A probable earthen revetment approximately 535 by 90 feet is along the northeastern side of the area. The dispersal radius to the nearest vital structure (item 7) is approximately 500 feet.

Item 9. Probable hardstand area. Within this area are four circular, probably paved hardstands that are off the main service road. Two of the hardstands measure 85 feet across and the other two measure 75 feet across. These hardstands probably are used for vehicles that transport propellants between the possible mixer stations (items 8 and 13), the possible revetted casting station (item 10), and the possible in-ground ovens (items 1 and 2).

Item 10. Possible revetted casting station. This is a drive-through building that measures 230 by 85 feet. The building has an earthen revetment on the east and south sides that measures approximately 45 feet wide. The station is road served off the main service road. The building

NPIC/R-77/62

is located approximately 2,100 by 1,900 feet, respectively, from the two possible mixer stations (items 8 and 13). The dispersal radius to the nearest vital structure (item 11) is approximately 300 feet.

Item 11. Possible control bunker. This possible control bunker is for the remote control of the possible revetted casting station (item 10) and measures 95 by 45 feet. The dispersal radius to the nearest vital structure (item 10) is approximately 300 feet.

25X1D

Item 13. Possible solid propellant mixer station. This building is located on the lower slope of a wooded hill in a possible excavation. The building measures 105 by 60 feet and is served by the internal road network. The dispersal radius to the nearest vital structure (item 17) is approximately 850 feet.

Item 14. Possible motor case recovery station. This is a drive-through building that measures 125 by 85 feet. It is served by a loop road off the internal road network. The dispersal radius to the nearest vital structure (item 15) is approximately 250 feet.

Item 15. Possible motor processing and trimming station. This is a drive-through building that measures 290 by 110 feet and is served by a loop road off the internal road network. The dispersal radius to the nearest vital structure (item 14) is approximately 250 feet.

25X1D

Item 17. Possible oxidizer preparation station. This is a drive-through building that measures 210 by 80 feet and has a side entrance

TOP SECRET CHESS RUFF

NPIC/R-77/62

for vehicle servicing. The building is served by a loop road off the internal road network. The dispersal radius to the nearest vital structures (items 13 and 15) is approximately 850 feet.

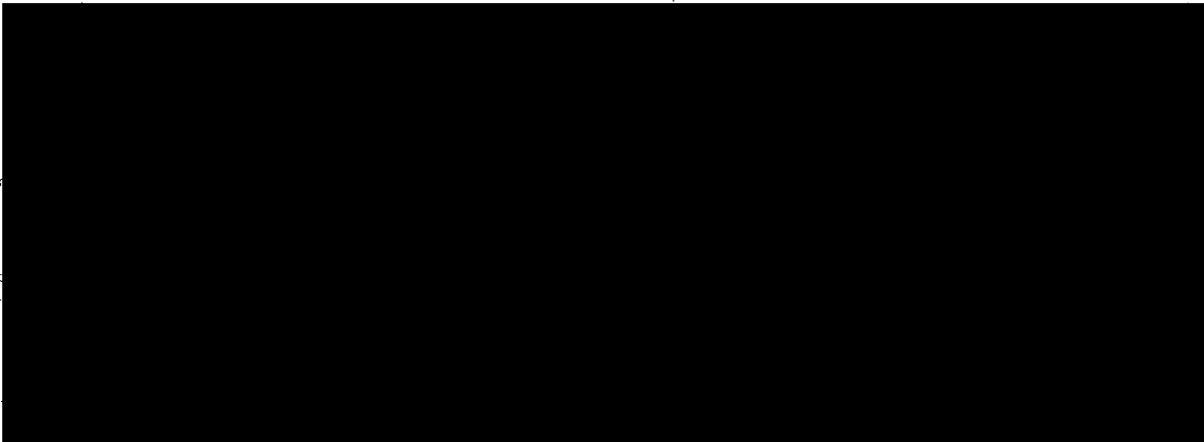
POSSIBLE CHEMICAL STORAGE AREA

The Possible Chemical Storage Area is located adjacent to the Possible Manufacturing Area, to which it is connected by road, but it is outside the security fence that separates the Possible Manufacturing Area and Possible Missile Engine Test Area "A" from the rest of the plant. The area is heavily wooded and measures approximately 3,100 by 1,000 feet. A description of facilities follows (item numbers are keyed to Figure 3).

Item 18. Possible chemical storage station. This is a revetted drive-through building that measures 230 by 85 feet. The dispersal radius to the nearest vital structure (item 10) is approximately 900 feet. The area also contains 13 other storage-type buildings that measure from 70 by 35 feet to 135 by 60 feet.

Item 19. Possible isolated liquid storage tank. This tank is 60 feet in diameter and is served by a dead-end road that leads into an isolated wooded area.

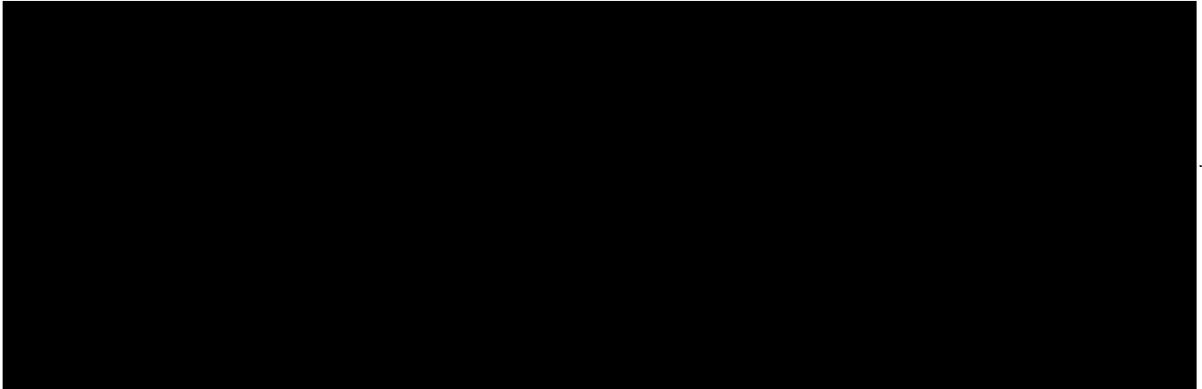
25X1D



TOP SECRET CHESS RUFF

Item 21. Unidentified structure. This structure, measuring 105 by 70 feet, is in an excavation that has been dug away to the east and to the north.

25X1D



Item 24. Possible circular earth-mounded bunker. This possible bunker measures 180 feet in diameter and is positioned 220 feet directly in front of item 23, so that any entry into item 23 involves going around the bunker.

POSSIBLE SOLID PROPELLANT MISSILE ENGINE TEST AREA "A"

Possible Solid Propellant Missile Engine Test Area "A", measuring 3,000 by 1,760 feet (Figure 4), is in the southwest part of the complex in an isolated, heavily wooded section at the base of a low hill. It appears to be the original test area for the complex. All three possible test bays are served from the Possible Manufacturing Area by an all-weather road with wide-radius turns at road intersections and approaches. The area is within the fenced portion of the plant that also contains the Possible Manufacturing Area.

Items 1, 2, and 3. Revetted possible missile engine test bays. These possible missile engine test bays measure 95, 135, and 110 feet across, respectively. All three test bays probably are earth revetted. Each

TOP SECRET CHESS RUFF

NPIC/R-77/62

engine test bay is road served off an entry road that is connected to the internal road network. Each test bay probably is concrete surfaced and probably is used for vertical and/or horizontal firings of low- and medium-thrust engines.

Item 4. Possible control bunker. This possible control bunker measures 55 by 35 feet and probably is for the remote control of firings at the three adjacent possible missile engine test bays. The bunker is approximately 380 feet from the center bay and is served by a road from the internal road network.

A hardstand, probably for parking associated vehicles, that measures 75 feet across, is located on the road from the Possible Manufacturing Area to Possible Missile Engine Test Area "A".

POSSIBLE SOLID PROPELLANT MISSILE ENGINE TEST AREA "B"

Possible Solid Propellant Missile Engine Test Area "B" (Figure 4), measuring 2,600 by 1,200 feet, appears to be still under construction and could be used for the testing of high-thrust, segmented missile engines. In configuration, physical location, size, and associated facilities, it is very similar to like US facilities. No internal security is discernible on the photography. The area is road served from the internal plant road network.

Item 5. Possible control bunker. This possible control bunker could be used for the remote control of the associated possible high-thrust engine test stand (item 6). The possible bunker measures 85 by 55 feet.

Item 6. Possible high-thrust engine test stand. This large possible test stand, possibly for vertical firing of large high-thrust, segmented solid propellant missile engines, was still under construction at the time of the [REDACTED] KEYHOLE photography. This facility, measuring 620 by 545 feet, is dug back into the heavily wooded hillside and [REDACTED]

25X1B

- 10 -

TOP SECRET CHESS RUFF

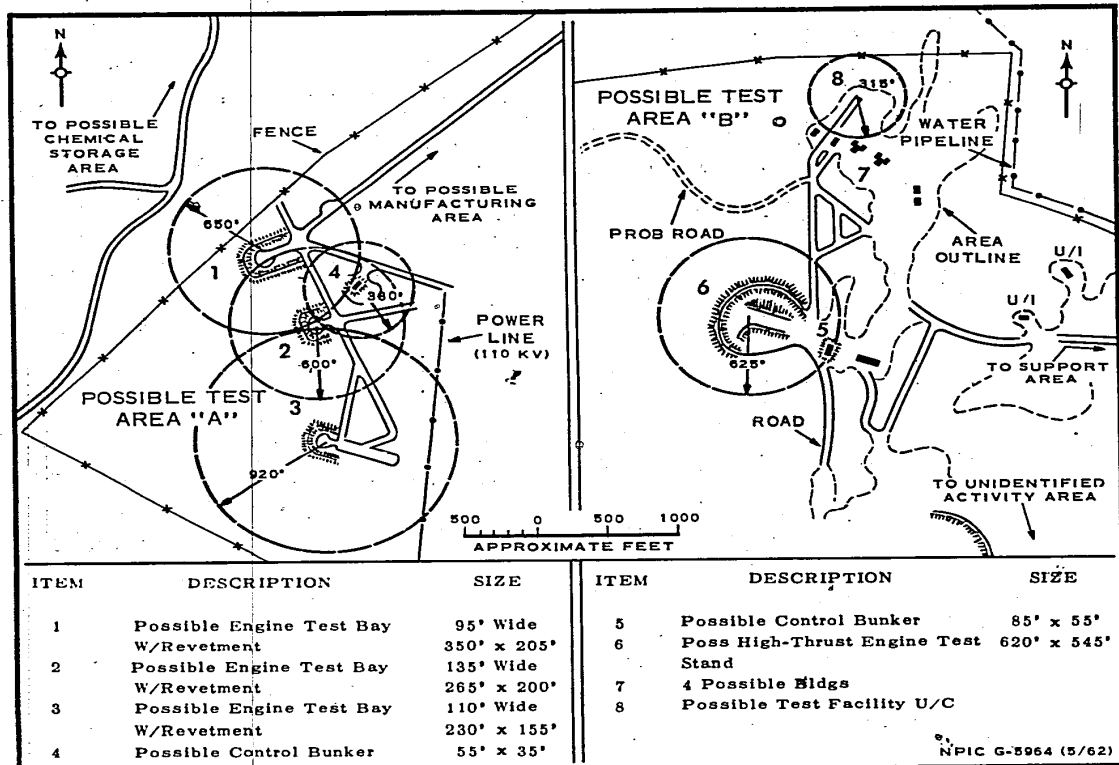


FIGURE 4. POSSIBLE SOLID PROPELLANT MISSILE ENGINE TEST AREAS "A" AND "B".

missile engine test stand. Access to the test stand is by a road 85 feet wide off the internal road network. The roadway extends into the excavated hillside 280 feet to the west and makes a wide-radius turn to the south that measures 220 feet. The dispersal radius to the nearest vital structure (item 5) is approximately 625 feet.

Item 7. Four possible buildings. The exact configurations and measurements of these possible buildings cannot be determined because of the extremely small scale and poor quality of the photography. They possibly are associated with the possible test facility that is under construction (item 8).

TOP SECRET CHESS RUFF

NPIC/R-77/62

Item 8. Possible test facility (under construction). The configuration and measurements of this facility cannot be determined because of the poor quality and extremely small scale of the photography. The structure is located in an isolated wooded area within an excavation that measures approximately 360 by 315 feet. The structure is road served from the internal road network. The dispersal radius to the nearest vital structure (item 7) is approximately 315 feet.

SUPPORT AREA

A large Support Area (Figure 5), measuring approximately 5,400 by 1,840 feet, lies in the northern section of the plant. The entire area is connected by a well-laid-out road network to all of the other plant areas, as well as to roads from the plant to Kyshtym, Miass, Zlatoust, and Chelyabinsk. The single-track rail line from Kyshtym that connects with the Sverdlovsk-Chelyabinsk rail line serves the plant holding yard (item 2) and branches within the plant into two rail spurs, one of which serves an unidentified structure (item 20, Figure 3). The area includes the following facilities:

Item 1. Possible storage and workshop section. This section contains approximately 25 storage-type buildings, each of which measures 135 by 40 feet. Approximately 43 support and/or workshop-type buildings scattered throughout the area range in size from 250 by 55 feet to 55 by 30 feet.

Item 2. Plant railroad holding yard. This railroad yard measures 1,600 feet long and consists of 3 or 4 tracks. South of the yard, the rail line branches into two spurs; one serves an unidentified structure (item 20, Figure 3), and the other ends in an adjacent dead-end spur. A single-track rail line out of the north end of the holding yard connects to the single-track rail line that also serves the Karabash Copper Combine and extends to Kyshtym.

Item 3. Probable administration building. This is a U-shaped building, the cross member of which measures 180 by 40 feet, and the two wings of which measure 40 by 40 feet each.

Items 4 and 5. Two unidentified isolated buildings. One of the buildings measures 105 by 50 feet and the other 65 by 40 feet.

Item 6. Possible drive-through building. This building measures 125 by 85 feet. Interpretation of the function of this building is not possible from the KEYHOLE photography. The dispersal radius to the nearest vital structure (item 3) is approximately 450 feet.

Item 7. Possible heating plant. This building measures 255 by 110 feet. A possible coal pile is adjacent to the building. No heat pipelines are discernible, because of the extremely small scale of the photography.

HOUSING AREAS

Two housing areas, one of which probably is being expanded, are exclusively associated with the Possible Solid Propellant Missile Engine

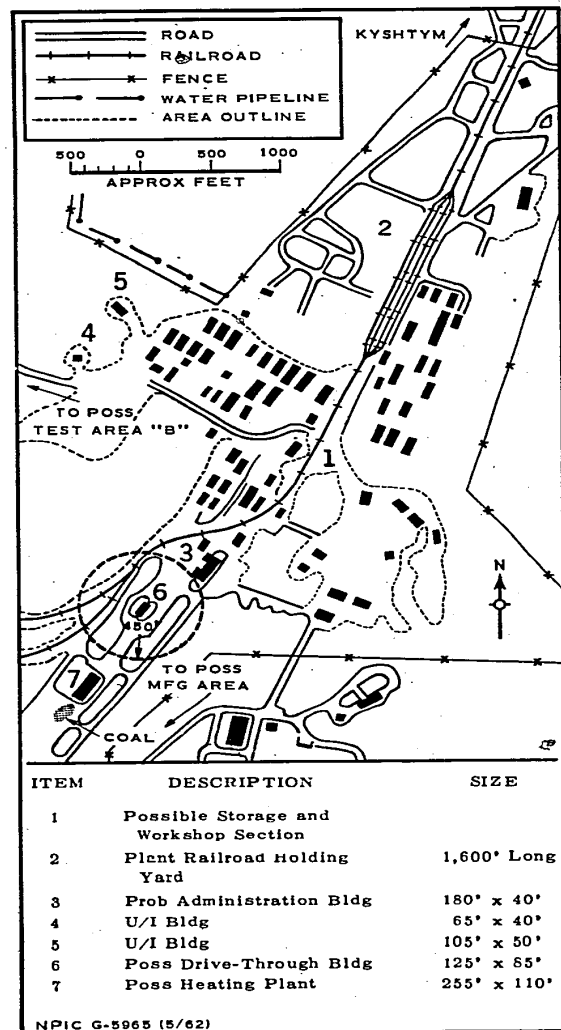


FIGURE 5. SUPPORT AREA.

TOP SECRET CHESS RUFF

NPIC/R-77/62

Manufacturing Plant at Karabash. Housing Area No 1 (Figure 2) is located approximately one nm west of the plant proper on the shore of a small lake. The area has the appearance of a typical elite Soviet housing development and lies on the west side of a heavily wooded hill, which is between it and the plant area. At the north end of the area there appears to be a trace of a security fence that possibly extends along the north end of the nearby lake. The housing area is served by an all-weather road that runs along the lower slope of the nearby hill and connects with the internal road network of the plant. Housing Area No 2 (Figure 2) is located approximately 1.5 nm southwest of the plant area and also is connected to the internal road network of the plant by an all-weather road.

Housing Area No 1. This area measures approximately 4,400 by 1,470 feet and consists of 36 two-family houses; 7 single-story barracks-type buildings, each 150 by 65 feet; 5 two-story apartment buildings, each 140 by 65 feet; 2 two-story V-shaped apartment buildings, the base of each measuring 65 by 50 feet, and the two wings, 70 by 50 feet; and 8 single-story apartment buildings, each 105 by 50 feet. These housing facilities furnish accommodations for about 360 families and 445 single personnel. The area also contains a boilerhouse, has an athletic field, and provides boating on the adjacent lake.

Housing Area No 2. This area, measuring approximately 4,650 by 1,200 feet, is located 1.5 nm southwest of the plant, and consists of 20 two-family houses; 2 single-story barracks-type buildings, each 200 by 65 feet; and 2 other barracks-type buildings under construction. These housing facilities furnish accommodations for about 40 families and 345 single personnel. Several large clearings in the adjacent area probably are for more housing units. A probable athletic field is under construction nearby.

25X1B

Approved For Release 2000/08/04 : CIA-RDP78T05439A000200080065-4

Approved For Release 2000/08/04 : CIA-RDP78T05439A000200080065-4

TOP SECRET CHESS RUFF

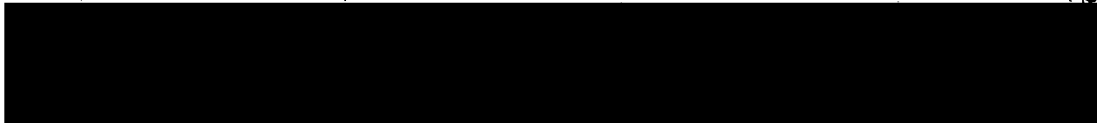
NPIC/R-77/62

REFERENCES

PHOTOGRAPHY

| <u>Mission</u> | <u>Date</u> | <u>Camera/Pass</u> | <u>Frames</u> | <u>Classification</u> |
|----------------|-------------|--------------------|---------------|-----------------------|
|----------------|-------------|--------------------|---------------|-----------------------|

25X1D



MAPS OR CHARTS

AMS. Series N502, Sheet NN 41-1, Series N501, Sheet 40-3, 1st ed, Nov 55, scale 1:250,000 (UNCLASSIFIED)

ACIC. US Air Target Chart, Series 200, Sheet 0164-2A, 1st ed, Oct 59, scale 1:200,000 (SECRET)

ACIC. US Air Target Chart, Series 200, Sheet 0164-7A, 1st ed, Dec 59, scale 1:200,000 (SECRET)

REQUIREMENTS

CIA. DDI/RR/E/R-67/61

CIA. DDI/OSI/R-187/61

NPIC PROJECT

JN-293/6T